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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,058	08/29/2000	Santosh P Abraham	2-48	8757

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EXAMINER

ZHONG, CHAD

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 05/03/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

pre

Office Action Summary	Application No. 09/650,058	Applicant(s) ABRAHAM ET AL.	
	Examiner Chad Zhong	Art Unit 2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

OFFICE ACTION

1. This action is responsive to communications: Amendment, filed on 03/24/2004. This action has been made final.
2. Claims 2, 3-5, 7-9 are presented for examination. In amendment A, filed on 03/24/2004: claims 2 and 7 are amended; claims 1 and 6 are canceled; claims 3-5, and 8 and 9 remain unchanged.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371 (c) of this title before the invention thereof by the applicant for patent.

4. Claims 2, 7, 3, 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Enns et al. (hereinafter Enns), US 6,658,010.
5. As per claim 2, Enns teaches a method for use in a transmitter, the method comprising the steps of:
 - using a downlink channel to convey information to a group of devices; and
 - load balancing the downlink channel (Col. 4, lines 24-40), wherein the downlink channel comprises a sequence of dwells, each dwell having a time period (Col. 12, line 12; Col. 20, lines 10-15), and wherein the method further comprises the step of detecting that at least one dwell of the sequence conveys more downlink information than the other dwells of the sequence as a prerequisite to performing the load balancing step (Col. 12, lines 11-25; Col. 13, lines 33-47; Col.

14, lines 1-5, lines 33-36; Col. 20, lines 10-17, lines 28-42).

7. As per claim 7, Enns teaches apparatus for use in a communications system, the apparatus comprising:

a transmitter for providing a downlink channel to convey information to a group of devices;
and,

a processor for performing load balancing on the downlink channel (Col. 4, lines 24-40);
wherein the downlink channel comprises a number of dwells, each dwell having a time period (Col. 12, line 12; Col. 20, lines 10-15), and wherein the processor performs the load balancing upon detection that at least one of the dwells conveys more downlink information than the other dwells (Col. 12, lines 11-24; Col. 13, lines 33-47, lines 24-27; Col. 14, lines 1-4, lines 28-55; Col. 20, lines 10-16, lines 28-43).

8. As per claim 3, Enns teaches a method for use in a wireless system, the method comprising the steps of:

sending data to a group of N wireless endpoints over a communications channel comprising a sequence of time slots (Col. 4, lines 25-40);

detecting an imbalance such that some of the time slots convey more data than other time slots (Col. 14, lines 27-36).

Shifting some of the data from least one time slot to another time slot for reducing the detected Imbalance (Col. 20, lines 10-17, lines 28-47).

9. As per claim 4, Enns teaches wherein the detecting step includes the steps of:

measuring the amount of data sent in each of M timeslots to the N wireless endpoints (Col. 14, lines 28-36); and

comparing the measured data for at-least-on of the M timeslots to others of the M timeslots

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for detecting the imbalance (Col. 14, lines 35-64).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enns et al. (hereinafter Enns), US 6,658,010, in further view of 'Official Notice'.

12. As per claim 5, As per claim 5, claim 5 is rejected for the same reason as the rejection to claim 3 above. However, Enns does not teach the concept of every other time slot.

The examiner is taking Official Notice that concept of every other time slot is notoriously well known in half duplex systems, which transmits data only every other cycle/period, as it is disclosed within applicant's system. The detection as well as the shifting aspects of this claim would be obvious to one of ordinary skill in this art at the time of invention was made as well, because under half duplex systems, only every other time slot have data available for detection and shifting for load balancing purposes.

13. As per claim 8, Enns teaches Apparatus for use in a wireless system, the apparatus comprising:

a scheduler for retrieving the stored data and for measuring the amount of stored data transmitted in each of M timeslots to the N wireless endpoints, and for comparing the measured data for at-least-one of the M timeslots to others of the M timeslots for detecting an imbalance in the transmission (Col. 14, lines 27-36, lines 53-64; Col. 16, lines 3-15), and for shifting some of

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the data from at least one time slot to another time slot for reducing the detected imbalance (Col. 20, lines 10-17, lines 28-43; Col. 14, lines 1-5, lines 28-40; Col. 12, lines 11-25).

14. Enns and Kornz does not teach a memory for storing data for transmission to a group of N wireless end points. However, Official Notice is taken by the Examiner that a memory is notoriously well known for advantage of storing data in a system.

15. As per claim 9, claim 9 is rejected for the same reason as the rejection to claim 8 above. However, Enns does not teach the concept of every other time slot.

The examiner is taking Official Notice that concept of every other time slot is notoriously well known in half duplex systems, which transmits data only every other cycle/period, as it is disclosed

within applicant's system. The detection as well as the shifting aspects of this claim would be obvious to one of ordinary skill in this art at the time of invention was made as well, because under half duplex systems, only every other time slot have data available for detection and shifting for load balancing purposes.

Conclusion

16. Applicant's remarks filed 03/24/2004 have been considered but are found not persuasive in view at the new grounds at rejection not necessitated by Applicant's amendment.

17. In the remark, the applicant argued in substance that Enns fails to disclose or suggest the step of detecting that at least one dwell of the sequence conveys more downlink information than other dwells of the sequence as a prerequisite to performing the load balancing step.

In response to Applicant's amendment, Enns does teach the above limitation. Referring to Col. 12, lines 10-25. The device is attempting to adjust to the optimum rate of transmission within time slots (or dwells). The notion of load balancing between the slots is further suggested on Col.

14, lines 1-5 and lines 28-40, wherein the quality of service (bandwidth) is maintained by shifting data in between time slots, further, this activity is suggested by Enns at Col. 20, lines 10-16, lines 28-43 where the data is shifted in between time slots in an attempt to load balance to the optimum rate of transmission. The Examiner realizes Enns mentioning of load balancing the upstream, however the same method can be applied to downstream as well, see Col. 20, lines 28-30.

Furthermore, terms downstream and upstream can be used interchangeably for those who are skilled in the art. Downstream and upstream are used relative to which devices on the network one is referring to. For instance, by definition, upstream is when a device attempt to upload information to the network and downstream is when a device attempt to download information from the network. While it is stated in Enns that upstream is being load balanced, yet at the same time this upstream is the same as the downstream the device on the other end is able to download, thus in light of this, upstream and downstream can be used interchangeably resulting in Enns teaching of load balancing of download stream.

18. In the remark, Applicant further argued in substance that Enns fails to disclose to suggest management of a single downlink channel by comparing the amount of information within each dwell in that individual channel.

In response to Applicant's amendment, Enns does teach the above limitation. Referring to Col. 20, lines 10-16, lines 28-43, Enns teaches each channel has multiple time slots, and load balancing is done to have transmission within a single time slot in that individual channel. This limitation is further suggested on Col. 12, lines 11-14, wherein the optimal time slot is elected for transmission purposes. Thus load balancing and link optimization within a single channel/link is taught by Enns.

A shortened statutory period for reply to this final action is set to expire THREE

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MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents and publications are cited to further show the state of the art with respect to "A load balancing technique for a wireless Internet access system".

- i. "MMTP - Multimedia Multiplexing Transport Protocol" Luiz Magalhaes et al., Spring 2000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Zhong whose telephone number is (703) 305-0718. The examiner can normally be reached on M-F 7am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on 703-305-8498. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

CZ
April 15, 2004



JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
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